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By- Levan, Frederick D.
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Attitude Change Title I (ACT I) was an effectiveness evaluation to determine what changes in semantic differential meaning accompanied Title I inservice teacher training, what differences in semantic differential meaning existed between teachers who did and did not have Title I training, and what relationships existed between personality characteristics and changes in attitude accompanying Title I training. The evaluation's primary population consisted of teachers of the disadvantaged (in Arizona, California, Nevada, and New Mexico) who had volunteered for Title I training during the 1966-67 school year; the three adjunct populations were teachers who had volunteered for Title I training during the 1965-66 school year, instructional leaders of 1966-67 inservice projects, and school district consultants who had had Title I training during the 1966-67 school year. Semantic differential was used to measure the evaluative, potency, and activity dimensions of meaning; one projective and four nonprojective instruments were correlate measures. F and t tests were applied to the data. It was found that Title I training of teachers during the 1966-67 school year did effect attitudinal differences, there were no attitudinal differences between teachers who had had Title I training in 1965-66 and those who had had training, and Title I training of consultants was not accompanied by attitudinal change. (Included are a 181-item bibliography and supplementary appendixes.) (Author/SG)

TEACHING TEACHERS TO TEACH THE DISADVANTAGED

Study of Attitude Change

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

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February 1968

Division of Compensatory Education--John F. Hughes, Director
Bureau of Elementary and Secondary Education, Office of Education
U.S. Department of Health, Education, and Welfare

SP001862

FOREWORD

This study, made by researchers in the College of Education, Arizona State University at Tempe, examines attitude change as an effectiveness criterion in the inservice training component of Title I programming.

It was conducted under contract with the U.S. Office of Education. Frederick D. Levan, Assistant Professor of Education, served as research director.

Because of limited funds, we are unable to reproduce the entire report. This is a condensed version.

John F. Hughes, Director
Division of Compensatory Education
Bureau of Elementary and Secondary Education

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CHAPTER I

THE GENERAL NATURE AND PURPOSE OF THE STUDY

Beginning in July 1966, an effectiveness evaluation of the inservice component of "Title I" programming in the Greater Southwest was initiated. The assessment (ACT I - Attitude Change Title I) was financed through an agreement (Research Contract OEC-4-6-001044-1956) with the Program Operations' Division of the United States Office of Education, Department of Health, Education, and Welfare. The results of this inquiry were based on data which were obtained from public-school teachers, instructional leaders, and school-district consultants who experienced inservice training in Arizona, California, Nevada, and New Mexico.

The study was evaluative in nature and purpose and was generated as a result of two Title I pilot assessments made by the principal investigator. The pilot investigations were concerned with a set of effectiveness criteria which had both affective and cognitive orientations. Both objective and multidimensional measures were used in each of the inquiries.

In the process of analyzing the data which were collected from the pilot assessments, a change criterion referable to the phenomenon of "meaning" emerged which seemed to have considerable potential for evaluating the inservice component of Title I programming. In addition to the emergence of a relevant

effectiveness criterion, it was determined that meaningful relationships existed between certain teacher characteristics and the change criterion. The teacher characteristics were classified as potential correlates of this criterion.

An aspect of the change criterion data which argued for its further use was the fact that it was related to a major problem encountered by teachers who participated in the Bridge Project (Downing, 1965, p. 209):

> . . . teachers had to develop more positive attitudes towards those aspects of the culture of their pupils which deviated from their own values, behavioral commitments, and procedures for coping with them.

Despite the considerable number of Title I effectiveness evaluations which had been done in the Southwest during the previous year, evaluators agreed that only moderate progress had been made toward meaningful assessment. The assessments in which objective procedures for evaluation had been used represented only a fraction of the total, and of these, the measured variables had been of limited importance.

Unlike other studies in which a change criterion had been employed, ACT I did not attempt to make the fatalistic jump from teacher phenomena to pupil learning. Too often in the past, a direct correlation of teacher phenomena to pupil learning had been attempted. This sort of procedure made an interpretation of such assessments in terms of existing theory impossible; alas, a linking of this type did not allow a generation of new theory or an extension of current theory. It was possible to relate teacher characteristics to teacher change by theory; similarly, it was possible to relate pupil

learning to teacher-pupil classroom behavior by theory; but to have made the jump from teacher phenomena to pupil learning involved so many unknowns in the intervening process that relevance to theory became exceedingly uncertain. Since ACT I was concerned only with the link between teacher characteristics and changes in semantic-differential meaning that occurred in teachers who participated in Title I sponsored inservice training, it represented a point in the overall process at which theory was relevant in explaining observed relationships.

This investigation's approach to an assessment of program effectiveness offered both pragmatic and theoretical advantages. Pragmatically, effectiveness differed from project to project. There were some projects in which the primary concerns were cognitively oriented; whereas, in other projects the objectives had an affective base. In a molar sense, the actual correlations between the criterion and its potential correlates permitted a descriptive identification of teacher-types who seemed unlikely to fit the inservice expectations of Public Law 89-10.

Theoretical advantages followed from conceptualizing the overall evaluation as one which had three phases: (1) measurement of changes in semantic-differential meaning (the criterion) which were exhibited by teachers who participated in Title I training during the first-half of the 1966-67 school year, (2) measurement of teacher characteristics - i.e., correlates of the criterion, and (3) determination of actual correlations between the criterion and its potential correlates. Since the

inquiry was based on theory and the process specified in these three steps, the functional relationships linking the three phases were examined and found to be meaningful.

Although most evaluative projects experience a major problem related to the definition of a criterion, the ACT I inquiry was based on an effectiveness criterion which had already been defined in Guidelines: Design and Evaluation of Projects, Elementary and Secondary Education Act of 1965, Title I. The following statements from the Guidelines' (1965) publication structured the criterion definition:

> . . . evaluation is the process of assessing the intensity and direction of change.
>
> . . . evaluation procedures appropriate for Title I will involve measuring change over a period of time.
>
> . . . evaluation procedures will involve obtaining appropriate measurements at the start of Title I projects and at the conclusion of the projects. The difference between successive measurements will be an indication of change and of the effectiveness of the use of Title I funds.
>
> . . . interpretation of change is achieved whenever comparative data is used which will make the results meaningful; the use of such data is apparent in designs which investigate change in Title I project groups compared with change in selected control groups.
>
> . . . evaluation programs must go beyond assessing acquisition of specific skills, facts, and knowledge of the cognitive domain; evaluation must involve measurements of the affective domain.

As an effectiveness evaluation, the ACT I study had no meaning apart from its criterion measures or its operational definitions of effectiveness. In reality, the change criterion

was a partial criterion. Its relevance was defended logically without undue apology for its lack of comprehensiveness, since it was unlikely that any of the Title I assessors had found a consensual formula for weighing inservice goals according to their importance for overall effectiveness.

Another way of describing the study was to compare it with other studies. Comparisons such as these revealed some of the general purposes of the present study and described some of its characteristics. Typical investigations were structured around measurements of changes in attitudes teachers exhibited toward certain types of pupils (Haring, Stern, and Cruickshank, 1958; Stern, Stein, and Bloom, 1956; Travers and Rabinowitz, 1953; Rabinowitz and Travers, 1955). Although assessments such as these were considered to be valuable undertakings, a number of authors have suggested that determinations of program effectiveness based on attitude change alone lack the dimensional significance necessary for meaningful evaluation. (Osgood et al., 1957, p. 199; Ryans, 1960, p. 1490; Mitzel, 1960, p. 1482; Soar, 1962, p. 114; Diab, 1965, p. 429).

In response to these suggestions, the project director made the decision to use change in semantic-differential meaning as the criterion. Since attitude represented only one dimension of meaning, although the major dimension, a change criterion based on meaning offered a more comprehensive evaluation of inservice effectiveness than a change criterion based on attitude alone.

A review of typical correlate studies suggested that

neither cognitive nor affective change takes place with equal facility in all subjects. Most evaluators made a distinction between these two types of change. Cognitive change was viewed as being attributable to the differential ability of various individuals to perform mediational tasks; whereas, affective change was perceived as being related to psychological conditions which created a considerable amount of resistance to modification. Most studies of the correlational type had a tendency to be based on the use of one or two personality inventories (Teigland, 1966, p. 84; McClintock, 1958, p. 481; Katz, McClintock, and Sarnoff, 1957, p. 466; Katz, Sarnoff, and McClintock, 1956, p. 30; etc.). While these inquiries were well received, ACT I staff members made the decision to implement one projective and four non-projective instruments as the assessment's correlational base. It was believed that a five-instrument approach would considerably enhance the evaluative significance of the investigation.

Inasmuch as hypotheses are stated in Chapter II, the following objectives were considered to be rather broad and represented only additions or extensions of the general nature and purpose of the study:

1. To determine if the meanings assigned to selected concepts by a subgroup of teachers who had volunteered and experienced Title I training during the 1965-66 school year (prior to ACT I) differed from the meanings assigned to the same concepts by a subgroup of teachers who had also volunteered for Title I training, but failed to receive it

2. To measure the changes in semantic-differential meaning exhibited by instructional leaders who participated in Title I training during the 1966-67 school year

3. To assess the changes in semantic-differential meaning exhibited by school-district consultants (a unique group) who had undergone Title I training during the 1966-67 school year

4. To work with state departments of public instruction and local school districts concerning all aspects of the overall evaluation

5. To supplement state and local evaluative efforts by furnishing appropriate assessment reports to each state and local district involved in the study

6. To assist five doctoral students in writing dissertations related to particular facets of the ACT I inquiry

In summary, ACT I was an outgrowth of two pilot assessments made by the investigator during the 1965-66 school year. It represented an effectiveness evaluation of the inservice component of Title I programming in the Greater Southwest. The study's results were based on data obtained from public-school teachers, instructional leaders, and school-district consultants who experienced inservice training in Arizona, California, Nevada, and New Mexico. The assessment was directed at measuring changes in semantic-differential meaning exhibited by teachers who participated in Title I training during the 1966-67 year, the measurement of teacher characteristics, and a determination of actual correlations between changes in meaning - primarily change in attitude - and teacher characteristics.

CHAPTER II

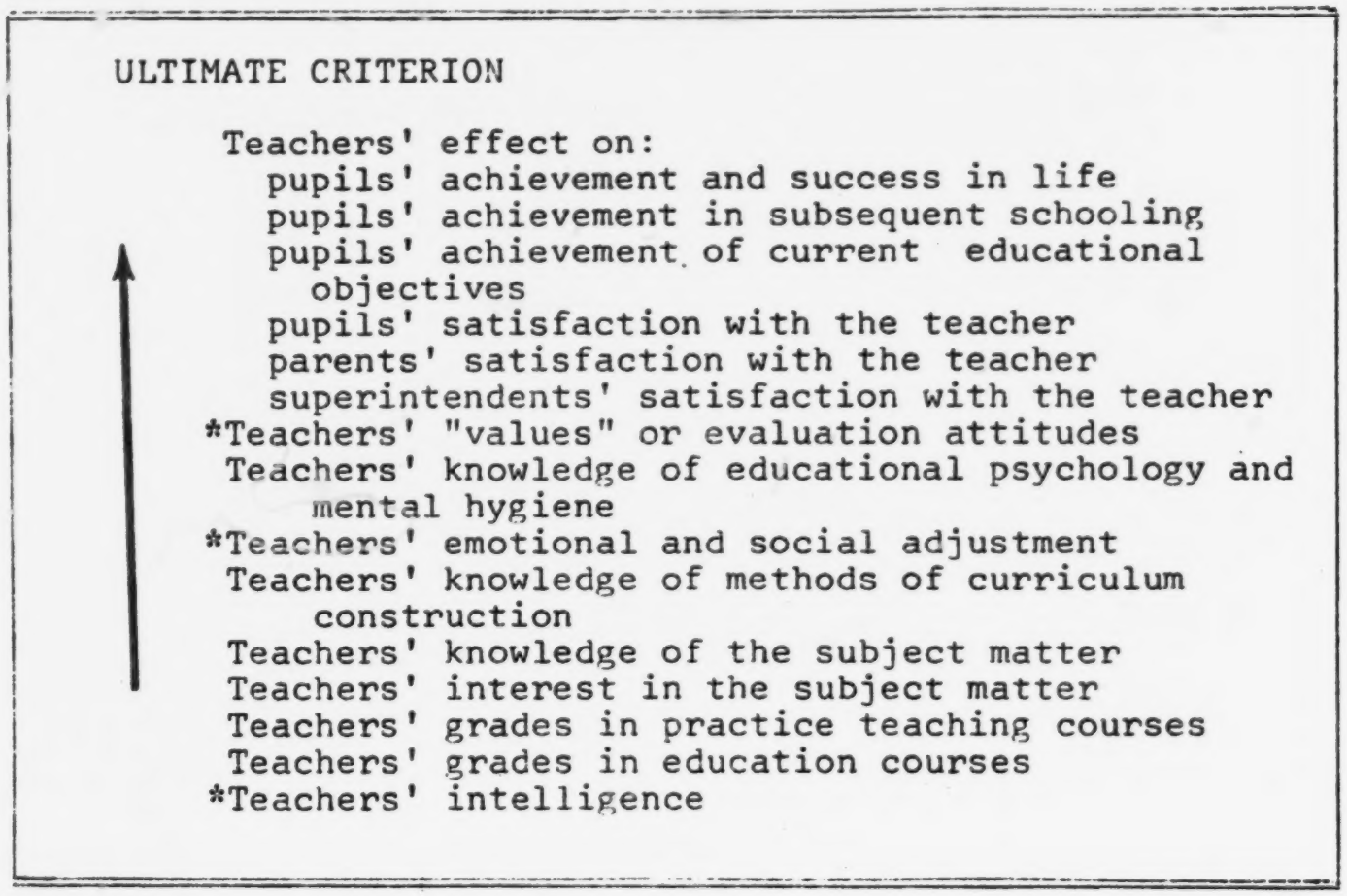
EVALUATIVE DESIGN

ACT I's evaluative design was based on several major referents. The first referent was a "criterion-of-effectiveness" paradigm which was diagrammed in the following form (Gage, 1963, p. 113):

POTENTIAL CORRELATES AND ASSOCIATED INSTRUMENTS	→	CRITERION OF TITLE I INSERVICE TRAINING EFFECTIVENESS AND ASSOCIATED INSTRUMENT
Teacher Personality Characteristics (Cattell's Sixteen Personality Factor Questionnaire, Gough's California Psychological Inventory, and Stone's Structured-Objective Rorschach Test) Teacher Values (Allport, Vernon, Lindzey's A Study of Values) Teacher Mental Ability (Nelson, Lamke, Kelso's Henmon-Nelson Test of Mental Ability)		Meaning Change - Primarily Attitude Change (ACT I Form)

By following such a guide, members of the research staff were committed to the evaluative tasks of measuring the changes in semantic-differential meaning (the criterion) which accompanied inservice training, measuring the personality characteristics, values, and intellectual abilities (potential correlates of the criterion) of inservice participants, and determining the actual correlations between changes in meaning and such characteristics, values, and abilities (the criterion and its potential correlates).

A supplementary sort of referential guidance was given to project evaluators in the form of an "ultimacy" paradigm (American Educational Research Association, 1952). This paradigm was viewed as a hierarchial list of effectiveness criteria whose levels' continua ranged from the "ultimate" to the "proximate." By using such a schema, the various strata of the ACT I evaluation were identified.


ULTIMATE CRITERION
Teachers' effect on:
pupils' achievement and success in life
pupils' achievement in subsequent schooling
pupils' achievement of current educational objectives
pupils' satisfaction with the teacher
parents' satisfaction with the teacher
superintendents' satisfaction with the teacher
*Teachers' "values" or evaluation attitudes
Teachers' knowledge of educational psychology and mental hygiene
*Teachers' emotional and social adjustment
Teachers' knowledge of methods of curriculum construction
Teachers' knowledge of the subject matter
Teachers' interest in the subject matter
Teachers' grades in practice teaching courses
Teachers' grades in education courses
*Teachers' intelligence

*Primary concern

The project's director realized the importance of data analyses of an experimental sort for uncontrolled X's as compared with evaluational essays and invalidated analyses too frequently used for investigations of the ACT I type; therefore, major structure was given to the study by specifying three primary evaluative bases forming pretest-posttest non-

equivalent control group, separate-sample pretest-posttest control group, and correlational designs. Adjunct structure was based upon static group and one-group pretest-posttest designs (Campbell and Stanley, 1963). In addition, structural meaning was given to the investigation by the use of Lindquist's (1953) simple-randomized design.

Definitions of terms and concepts regarding criterion and correlate variables that were used in developing the evaluative design were obtained from the preceding theories and reworded so as to apply operationally to the objectives of the present study. These major definitions follow:

Meaning: evaluative, potency, and activity factor scores

Attitude: evaluative factor scores

Change: variation in pretest-posttest scores, the direction being specified as positive, negative, or zero change

Evaluative factor score: the sum of nine constituent scalar scores (good - bad, pleasant - unpleasant, kind - cruel, sweet - sour, honest - dishonest, clean - dirty, successful - unsuccessful, wise - foolish, timely - untimely)[1]

Potency factor score: the sum of three constituent scalar scores (masculine - feminine, hard - soft, strong - weak)

Activity factor score: the sum of three constituent scalar scores (active - passive, hot - cold, fast - slow)

Aggregate score: the sum of ten concepts for a given factor (dimension). Every subject thus had three aggregate scores (evaluative, potency, activity) for each ACT I Form

Area score: the sum of two concepts in an area for a given factor. Every subject thus had five area scores (learner, teacher, curriculum, methods, social policy) for each of the three factors (evaluative, potency, activity)[2]

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[1]In studies quoted by Osgood et al. (1957), "factor scores" were considered as means, not sums, of constituent scales. This minor difference did not affect the later treatment of present data.

[2]Marks (1965) totaled concepts within areas where they were assumed to lie.

Concept score: the sum of constituent scalar scores for a given factor. Every subject thus had three factor scores for each of the ten concepts (MIGRANT CHILDREN, SLOW LEARNERS, AUTHORITARIAN TEACHERS, REMEDIAL TEACHERS, THE PHYSICAL SCIENCES, THE THREE R's, ENRICHMENT PROGRAMS, INSERVICE TRAINING FOR TEACHERS, "GETTING BY," EQUALITY)

Personality factor score: the sum of a variable number (22-121) of constituent item scores for each of four factors (California Psychological Inventory, modified version), the sum of six constituent item scores for each of sixteen factors (Sixteen P.F. Test, Form C), the sum of a variable number (23-100) of constituent item scores for each of fifteen factors (S - O Rorschach Test), the sum of a variable number (40-60) of a constituent item scores for each of two factors (Henmon-Nelson Test of Mental Ability), the sum of a variable number (18-23) of constituent item scores for each of five values (Study of Values)

Title I training: inservice teacher education supported by funds allocated under the provisions of Public Law 89-10, "Title I"

Experimental subjects: teachers of educationally disadvantaged pupils who had not undergone prior Title I training, but who experienced such training during the first semester of the 1966-67 school year

Control subjects: teachers of educationally disadvantaged pupils who had not undergone prior Title I training and who did not experience such training during the first semester of the 1966-67 school year

Consultants: experts in specialized fields who experienced Title I training and whose advice will be sought for the improvement of future educational programs directed at helping educationally deprived pupils in a given district (e.g., reading specialists, guidance counselors, subject matter specialists, speech correctionists, social workers, special-education teachers)

Inservice leaders: instructional leaders of Title I training projects (e.g., professors, local specialists)

Small-group training: inservice training which involved less than thirty experimental subjects

Large-group training: inservice training which involved more than thirty experimental subjects

Specialized training: Title I training that prepared experimental subjects to work specifically with educationally deprived children (e.g., remedial reading, mental retardation, programmed learning, enrichment programming, ungraded primary, "S.R.A." - "I.T.A." - "W rds in Color" Programming, audio-visual instruction for deprived children)

Generalized training: inservice training for experimental subjects which was not esoteric. This type of training was directed at a broad spectrum of educational subjects (e.g., basic needs, early experiences, minority cultures, home environment, social class, language, cognition and learning, intelligence and aptitudes, personality and motivation, achievement)

Short-term training: Title I training of less than sixteen weeks' duration (e.g., short courses, workshops)

Long-term training: Title I training of "at least" sixteen weeks' duration (e.g., university extension classes meeting weekly for a complete semester)

Rural-centered training: Title I training which occurred in hamlets, villages, or towns having less than 5,000 inhabitants

Town-centered training: Title I training which occurred in towns or cities having more than 5,000 residents, but less than 50,000 inhabitants

Urban-centered training: Title I training which occurred in cities or city-suburbs having more than 50,000 residents

Low-cost training: inservice training which did not exceed an hourly cost of $2.40 - i.e., the median cost of training each teacher in the various projects. The median (costs ranged from a low of $1.19 to a high of $4.08) was calculated from data which were submitted by individual project directors whose teachers had participated in the ACT I evaluation

High-cost training: inservice training which did exceed an hourly cost of $2.40 - i.e., the median cost of training each teacher in the various projects. The median (costs ranged from a low of $1.19 to a high of $4.08) was calculated from data which were submitted by individual project directors whose teachers had participated in the ACT I evaluation

Greater Southwest: Arizona, California, Nevada, and New Mexico

Further design structure was given to the study by previously discussed aspects of those theories that were pertinent to the general nature and purpose of the evaluation. The basic theory was the two-stage mediation theory of meaning. This theory served as the focus to which the semantic-differential technique was linked. Other "principle of consistency" theories (e.g., congruity - incongruity, balance - imbalance, and consonance - dissonance models) were used as references for rationalizations related to change phenomena. Additional theories relating personality characteristics to meaning change (primarily attitude change) were important aspects of the study's design.

Hypotheses

The study's framework and its relationship to reported research employing change theory was used as the basis for developing hypotheses which were examined during the course of the evaluation. Hypotheses were made operational in terms of the criterion and its potential correlates as defined by the instruments that were used to obtain data about the variables.

Essentially, the study examined a series of questions. Subsumed under these questions were hypotheses which had emanated from previous evaluative studies.

Question 1: What changes in semantic-differential meaning accompany Title I training?

Do teachers who experience Title I training change their aggregate ratings in terms of the evaluative, potency, and activity dimensions of meaning? Are there changes in the evaluative, potency, and activity ratings which teachers assign to investigational areas? What changes in evaluative, potency, and activity ratings do teachers exhibit toward selected concepts? Do the dimensional, area, and concept ratings of participating and non-participating teachers differ? Do the evaluative, potency, and activity ratings of teachers who experience Title I training differ in terms of small and large-group training, specialized and generalized training, short and long-term training, high and low-cost training, and urban, town, and rural-centered training?

Do consultants who experience Title I training change their aggregate ratings in terms of the evaluative, potency, and activity dimensions of meaning? Are there changes in the evaluative, potency, and activity ratings which consultants assign to investigational areas? What changes in evaluative, potency, and activity ratings do consultants exhibit toward selected concepts?

Do instructional leaders of inservice programs change their aggregate ratings in terms of the evaluative, potency, and activity dimensions of meaning? Are there changes in the evaluative, potency, and activity ratings which instructional leaders assign to investigational areas? What changes in evaluative, potency, and activity ratings do instructional leaders exhibit toward selected concepts?

Question 2: What differences in semantic-differential meaning exist between teachers who have already experienced Title I training (1965-66 school year) and teachers who have never undergone Title I training?

Do the dimensional aggregate ratings of trained and untrained teachers differ? Are the investigational area ratings of trained and untrained teachers different? What differences exist between the concept ratings of trained and untrained teachers?

Question 3: What relationships exist between various personality characteristics and changes in attitude which accompany Title I training?

Are the personality factor ratings of inservice teachers related to changes they exhibit in their evaluative aggregate ratings? Are there personality differences between teachers who are directionally grouped by changes in their evaluative aggregate ratings?

CHAPTER III

METHODOLOGY

Chapter III's exposition was divided into four sections. In the chapter's first section, the study's populations and samples were identified and described. The second and third sections represented reports which were related to the criterion and correlate instruments. An additional section was presented in the form of a description of data collection. A final section was written as a general outline of the statistical analyses which were used in the ACT I evaluation.

Populations and Samples

By August, 1966, approximately 200 school districts in Arizona, California, Nevada, and New Mexico had submitted program proposals to their respective State Title I directors for funds which were available under the provisions of Public Law 89-10. Each of the proposals included an inservice training component for teachers of educationally disadvantaged pupils. As State representatives appraised these proposals, the ACT I director was notified, and he, in turn, compiled a list of 200 approved inservice training project groups.

After corresponding with district administrators, 163 groups of teachers were made accessible for evaluative purposes. Administrators had been asked to declare groups accessible only if the teachers who were to compose the groups had (1) volunteered for Title I training during the 1966-67 school year, (2) no previous Title I training, (3) agreed to the proposed ACT I testing, and (4) were teachers of educationally disadvantaged pupils.

Fifty groups of teachers were randomly selected from the 163 accessible groups. Of these fifty groups, twenty-seven took their training during the first semester of the 1966-67 school year. The remaining twenty-three groups were scheduled to take their training during the second semester of the same school year or at some later date.

The twenty-seven groups of teachers who experienced Title I training during the first-half of the school year were considered as a random sample from a hypothetical population like the parent population, except that all its members received inservice training; likewise, the twenty-three groups of teachers who did not experience first-semester training were considered as a random sample from a hypothetical population like the parent population, except that none of its members received inservice training - i.e., not until the second half of the 1966-67 school year or at some later date. The "overall null hypothesis" to be tested was that the criterion means of these populations were identical.

Since the groups of teachers were not selected strictly

at random from the "real" population in which ACT I's director was basically interested, he worked with those groups of teachers of that population who were "accessible" to him, even though the accessible groups of teachers may have differed systematically from those who were not accessible; however, the director did draw the groups of teachers strictly at random from those groups that were accessible to him. On such a basis, members of the evaluative staff contended that these groups of teachers were random samples from the same "hypothetical" parent population - roughly defined as all groups of teachers "like those involved in the evaluation." The evaluation, therefore, had a number of different hypothetical populations - each of which was regarded as having been generated from the parent population by the administration of a given treatment to all of its members.

Realizing that any random sample selected from a list of accessible groups of teachers would have been biased, staff members rationalized that since they were not basically interested in estimating the population mean for a given treatment, but only in estimating the "rank order" of the treatments on the basis of their effectiveness for the whole (real) population, it did not matter if all obtained treatment means were biased - so long as they were equally biased in the same direction.[1] It was plausibly imagined that all treatments may

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[1]It was never assumed that the absolute effects of each treatment were the same for both populations, but only that the relative effects of the treatments were the same.

have done better with the accessible groups than with non-accessible groups, but there seemed to be no reason to suppose that any one treatment would have done "relatively" better than any other for either the hypothetical or real populations. If null hypotheses were retained for the hypothetical population, it was reasonably assumed that they could also have been retained for the real population. Possible differences between selected groups of teachers and those not selected were not likely to affect the responses to some of the treatments more than to others.

After ACT I's pretests were given to the groups of teachers, preliminary statistical tests (e.g., the F test of analysis of variance and Bartlett's test for homogeneity of variance) were applied to means and variances of the groups. Since these tests failed to reveal any significant differences among the groups, staff evaluators contended that the combined groups could be regarded as simple random samples; that is, they regarded the "treatment" groups of combined groups of teachers as simple random samples of teachers - not as random samples of "intact" groups of teachers. In addition to the beliefs that the assumptions of homogeneity of means and variances had been met, the combining of groups of teachers was strongly supported by "a priori" considerations.

A second parent population from which samples were drawn was represented by teachers who had volunteered for Title I training during the second-half of the 1965-66 school year (one year prior to the ACT I study). Since Public Law 89-10 had

just been enacted, very few districts had applied to their state representatives for proposal approvals.

In August, 1966, Title I representatives in the various states provided ACT I's director with lists of those inservice projects which had been approved before the second semester of the previous school year. After these lists were received, school district representatives were contacted for accessibility purposes. Twenty groups of teachers were declared accessible on the same four conditions which were mentioned previously in this chapter.

Project assistants decided to use all of the teachers who were available in the twenty accessible groups. After districts forwarded their lists of teachers' names, a master list of names was devised. From this final list of names (the parent population), the study's evaluators drew a sample of 180 subjects at random and then divided the subjects into two subgroups after the initial sampling had been made.

The two subgroups were defined as (1) teachers who had volunteered and experienced Title I training during the 1965-66 school year and (2) teachers who had volunteered for Title I training during the same year, but failed to receive it. It was assumed that teachers had failed to receive Title I training for a number of reasons (viz., the districts had not been able to get the instructional leaders they needed; regional colleges did not offer the extension courses which were desired; financial problems developed, etc.).

A large sample of subjects was randomly selected from a

list of instructional leaders who had declared themselves available for ACT I testing on a pretest-posttest basis. Again, since the sample was drawn only from accessible individuals, a hypothetical population was used as an inferential referent.

In addition to the two previous adjunct populations and their associated samples (namely, posttest-only and instructional-leader respondents), a real population of consultants who were about to experience Title I training was identified. The population was "real" in the sense that all of the school district's consultants were scheduled for such training. From this population, a small random sample of subjects was chosen and these individuals completed both pretest and posttest ACT I booklets.

Criterion Instrument

Osgood (1956) and Osgood and Suci (1952, 1955) developed the well-known scaling device, the semantic differential, whereby subjects allocated concepts which were represented by word stimuli, on a standard set of bipolar descriptive scales by means of a series of independent judgments (Osgood, Suci, and Tannenbaum, 1957). Factor analytic techniques were applied to their data, the results of which indicated three independent dimensions which they believed to be descriptive of the connotative meaning of any concept. Meaning, therefore, could be described by its location within a three-dimensional space defined by the three independent factors: evaluation, potency,

and activity.

Creelman (1966, p. 46) suggested that the semantic-differential technique has a number of important qualities:

1. It provides a precise method for measuring changes in meaning.

2. It provides a tool (at least in a limited way) for demonstrating that behavior tends to change in relationship to changes in the phenomenal world of individual meanings.

3. It provides a map of the "semantic space" of a concept whose relationships (with regard to dimensions and change) to other concepts and to various kinds of observable behavior might be determined.

4. It is a method which has the quality of being itself a device for discovering the meanings of words, and it may be used for measuring the amount of transfer or generalization relative to conditioning, learning, and association methods.

ACT I Form

Essentially, this form was considered to be a limited association test which measured the meanings - primarily attitudes - of concepts on bipolar adjectival scales (seven-point scales), and the assumption was made that such meanings of concepts were "complex affairs" - compound reactions composed of "n" bipolar reaction components. When the ten concepts were decoded by the subjects, complex reactions were assumed to have occurred - consisting of patterns of alternative bipolar reactions elicited with varying intensities. When subjects encoded their semantic states against the differential, their selections of direction (i.e., good vs. bad, strong vs.

weak, active vs. passive) were assumed to be co-ordinate with the reactions elicited by the signs (concepts) and their degrees of polarization or extremeness (how far along the scales they checked) to be co-ordinate with the intensity of these reactions.

Choice of Concepts. It was stated in the preceding paragraph that concepts were chosen by the process of stratified randomization. After their selection had been made, a list was devised which recorded the various sources from which they were taken. In addition, the list included both the value and judgmental characteristics associated with the ten concepts. The following enumeration represents the list:

1. AUTHORITARIAN TEACHERS. Frank Riessman (1962, p. 72) wrote:

> On the average, it is the old-style, strict, highly structured teacher who appears to be most popular and effective with underprivileged children. The progressive approach has too many features that are alien to the culture of the deprived: the permissiveness; the accent on self - the internal - the introspective; creativity and growth as central goals of education; the stress on play; the underestimation of discipline and authority. These values are contradictory to the traditional attitudes and personality characteristics of the deprived. Traditionalists contribute structure, rules, discipline, authority, rote, order, organization, and strong external demands for achievement.

2. ENRICHMENT PROGRAMS. A Chance For a Change (1966, p. 38); Community Action Program Guide (1965, p. 25);

Guidelines: Special Programs for Educational Deprived Children (1965, p. 30); Riessman (1962, p. 125). Each of these sources suggested the crucial importance of enrichment programs. At a minimum, seventeen percent of the Title I projects across the country had an enrichment component.

3. THE PHYSICAL SCIENCES. Riessman (1962, p. 13) suggested children have a great respect for the physical sciences. He made the proposition that such respect is related to the physical and non-symbolic approach to life which these children exhibit. In general, educationally disadvantaged youngsters feel powerless in most areas of life, and science seems to give them control and strength.

4. THE THREE R's. Again, Riessman (1962) stated that

> . . . from the deprived child's attitudes toward education, it is not at all difficult to predict which subjects he will like in school. His interests center around the three "R's" and the sciences, while he is least interested in social studies, literature, and the arts as they are normally presented in the school.

5. EQUALITY.

> The disadvantaged pupil favors the underdog, and his relationships to people are marked by an equalitarian, outspoken informality . . . the neighbor who gets ahead is expected "not to put on airs"; he should continue to like the "old gang" and accept them despite his new position (Riessman, 1962, p. 27).

6. REMEDIAL TEACHERS. The authors of Guidelines (1965, p. 30) asserted that programs for educationally deprived pupils should include the services of remedial teachers. An analysis of Title I projects showed that more than half of the projects involved remedial reading components. The value of

remedial teachers for disadvantaged students was also "pointed out" in A Chance For a Change (1965, p. 54) and Guidance For Educationally Disadvantaged Pupils (1965, p. 12).

7. SLOW LEARNERS.

> There is little doubt that the deprived child typically works on academic problems in a slower manner . . . he requires more examples before seeing a point . . . he is a slower reader, slower problem solver, slower at getting down to work, and slower in taking tests (Riessman, 1962, p. 65).

8. MIGRANT CHILDREN. The Guidelines' (1965, p. 31) authors contended that

> . . . local educational agencies have large numbers of migrant children passing through their school districts at some time during the year. The local educational agency has the responsibility for reaching the educationally deprived, and certainly many children of migrant farmworkers fall into this category. Local agencies should make provision for these children.

9. "GETTING BY." In reference to the social value of "getting by," Riessman (1962, p. 27) indicated

> . . . that while desiring a better standard of living, the disadvantaged youngster is not attracted to a middle-class style of life - with its prestige, status, and individualistic standards of betterment. A need for "getting by" rather than "getting ahead" in the self-realization and advancement sense is likely to be dominant.

10. INSERVICE TRAINING FOR TEACHERS. Guidelines (1965, p. 29); A Chance For a Change (1965, pp. 32, 54). The authors who were responsible for both of these sources recommended inservice training for teachers of educationally disadvantaged pupils. At least thirty-one percent of all Title I projects had inservice components - this component was mandatory in

some states (e.g., California).

The concepts were randomly assigned to the pages to avoid position effects.

Correlate Instruments

In transition, it was necessary to note that six instruments were used to collect information from the subjects. One instrument (ACT I Form) was solely developed by members of the evaluative staff. The others were developed by various scholars and had been previously used in numerous research studies. One of the latter inventories (California Psychological Inventory) was modified by a member of the project's staff. Since the major dimensions of these instruments were briefly mentioned in the previous chapter, the purpose of this section of Chapter III was to describe in detail the correlate instruments.

Sixteen Personality Factor Questionnaire (Form C)

Growing use of "Form A" and "Form B" of the 16 PF Test in many studies (e.g., clinical, educational, and industrial) suggested all sixteen dimensions of personality gave better predictions than were obtained from single scale tests.

"Form C" was later constructed for use as a short form where time was a factor, and it was also used as an extension of the original questionnaire forms. The personality factors measured by Form C were exactly parallel to the factors measured by Form A and Form B. When used in previous studies, it tested as much of the total personality as can be covered by a questionnaire, according to the most up-to-date psychological research (Cattell, 1962).

The questionnaire's manual utilized both the full technical terms, e.g., "schizothymia vs. cyclothymia," and a simpler set of labels generally used by applied psychologists - i.e., "aloof vs. warm."

Six questions were used for each of the sixteen factors, except the factor of "general intelligence" where eight items were used. In addition to these items, seven motivational distortion items were added. These seven questions were selected by a special study for showing the maximum change of scores with the same persons when they were switched from non-motivated to motivated situations.

The California Psychological Inventory (Modified)

The California Psychological Inventory developed by Gough was designed to provide a multidimensional profile of the "normal" personality. The eighteen scales of the instruments yielded standard scores and separately reflected categorical groupings whose characteristics were instrumental in social living and social interaction (Gough, 1957). The author relegated these scales to four classes and indicated that they were not intended to define factorial categories.

Two recent studies (Mitchell, 1960; Crites, 1961) provided empirical support for the existence of four distinct factorial categories and suggested that these factors accounted for the primary variance in the instrument. It was proposed by Mitchell et al. (1960) that such an approach was prima facie more objective, netted essentially the same inferences, and permitted descriptions of personality to be made in conventional psychological terms. The benefits which accrued from these analyses precipitated a decision on the part of ACT I staff members to utilize a limited number of scales. This decision was supported by the general agreement of the factorial studies.

Factor I (Adjustment by Social Conformity) was represented by a single scale - self-control - which was considered to be a pure measure of the factor - i.e., it had a factor loading of 0.92. Factor II (Social Poise or Extroversion) was represented by three scales - dominance, sociability, and self-acceptance - which had a mean loading of 0.77. Factor III (Super-ego) was well estimated by both the communality and feminity scales and had a mean factor loading of 0.51. The fourth factor (Capacity for Independent Thought and Action) was adequately represented by the flexibility scale which had a factor loading of 0.56. In all instances the factors were considered independent and led to no appreciable inferences regarding other factors.

The Henmon-Nelson Tests of Mental Ability (Form A)

The Henmon-Nelson Tests of Mental Ability were designed to measure those aspects of mental ability which the authors considered important for success in academic work and in similar endeavors outside the classroom. The ACT I staff members used the college-level tests (Form A). The instrument contained 100 items arranged in order of increasing difficulty, and the difficulty of items was designed so that the test was suitable for use with students from the freshman year of college through the first year of graduate school. Quantitative and verbal scores were obtained as well as total scores. Sixty percent of the test items represented the verbal factor, and the remaining forty percent represented the quantitative factor.

The Study of Values

The Study of Values is an inventory representing "A Scale for Measuring the Dominant Interests in Personality." Its authors have suggested that it measures the relative strengths of six basic values or motives in personality: the theoretical (discovery of truth); the economic (interest in what may be practically applied); the aesthetic (emphasis on form and harmony); the social (altruistic love or philanthropy); the political (interest in power); and the religious (seeking of unity). The test was derived from Spranger's (1928) work, Types of Men, which was based on the thesis that the best insights into the interests of subjects were given by studies of their values or evaluative attitudes. The instrument was developed by Gordon W. Allport, Philip E. Vernon, and Gardner Lindzey and published by Houghton Mifflin Company of Boston.

Structured-Objective Rorschach Test

The SORT was described by its author, Joics B. Stone (1958) as:

> . . . a radical modification of the traditional Rorschach Test. Although it uses the same blots and basically the same scoring system and interpretative rationale, the SORT has no free responses and no inquiry. Instead it suggests responses and requires a fixed number of total responses. These features of the SORT permit: (1) group administration and self-administration, (2) objective scoring, (3) objective standardization, (4) comprehensive norming, and (5) objective and simplified interpretation.

The test's author designed a psychological instrument which was to provide meaningful data for analyses of personality. Its development

incorporated the subtle features of the widely respected and highly developed Rorschach projective methodology with the practical group methodology of objective tests. The two main features of the traditional test were preserved in the SORT - viz., the ten original stimulus blots and the same scoring system.

The SORT as a measuring device differed from its traditional referent in a number of ways. First, stimulus responses were provided for subjects. Second, a fixed number of stimulus responses were provided by a forced-choice format. Third, no inquiries of subjects were necessary. Fourth, the test was not developed for clinical use.

As it was used in the ACT I study, the test measured four types of personality attributes: mental functioning, interests, responsiveness, and temperament. Mental functioning included such attributes as "theoretical" (the facility for visualizing the overall picture); "practical" (tendency for thinking or attacking problems on the basis of concrete details); "pedantic" (preference for thinking and attacking problems on the basis of concrete details: preference for thinking and attacking problems from the standpoint of fine minute details); "induction" (facility for logical thinking based upon inferences); "deduction" (readiness to employ the logical approach in which established principles are applied to data); "rigidity" (tendency toward dogmatic or fixed ideas); "structuring" (facility for mental alertness and precision in perceiving reality); and "concentration" (capacity for attending to the task). Included under interests were "range" (the tendency of interests to be expansive or narrow); and "human" (the disposition toward perception of elements having human connotation). Included under

responsiveness were "popular-empathic tendencies" and "original" (disposition to perceive the unique). Included under temperament were "persistence" (the determination not to deviate from a set course); "aggressiveness" (aspiration toward goals by means of well accepted and morally developed procedures); "social responsibility" (willingness to subserve oneself even though no personal gains are evident); "cooperation" (willingness to use a team work approach); "tact" (control of impulses and biases); "confidence" (inner feelings of prestige); "consistency of behavior" (predictability of actions); "anxiety" (generalized apprehensiveness), "moodiness" (sharp fluctuations in moods); "activity potential" (energy endowment); "impulsiveness" (spur of the moment decisions); "flexibility" (adaptability); and "conformity" (tendency to accept and be directed by socially accepted codes).

Data Collection

All subjects who composed the fifty groups of teachers completed the ACT I Form before their training was scheduled to commence. After testing, the instruments were collected by evaluative assistants who had previously been assigned to work with the various groups.

The groups of teachers who experienced Title I training were posttested (ACT I Form) immediately after treatment - i.e., at the end of the year's first semester. The groups of teachers who did not experience training during the first-half of the school year were also posttested at the mid-year period. Again, the ACT I booklets were collected by the project's assistants.

Six-weeks' posttesting was only feasible in a few groups of trained teachers; namely, those groups which had several hundred teachers. In situations such as these, separate-sample pretest-posttest designs were used. ACT I's evaluators randomly assigned subjects to each of three testing periods (e.g., pretest, immediate posttest, and six-weeks' posttest periods). In addition to eliminating testing effects (Campbell and Stanley, 1963, p. 223), such assessments allowed participating members of the study's staff to explore the possibility that long-range effects might have been greater than immediate (short-term) effects for either general or specific attitudes (Hovland, Lumsdine, and Sheffield, 1949). From the beginning of the evaluation, the assessors felt that repeated-posttest measures on the same teachers would be even more misleading than pretest measures.[1]

Groups of teachers who had volunteered and experienced Title I training during the 1965-66 school year and groups of teachers who had volunteered for such training but did not receive it during that year or at any other time were assessed on a posttest-only basis. After the ACT I booklets were completed, they were collected by the study's assistants.

Before they began to teach the inservice participants, instructional leaders completed the ACT I Form. After groups of teachers were trained, the instructional leaders were posttested. Their booklets were collected by staff assistants and forwarded to a data reduction center.

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[1]Appendix A represents the pretest-multiple posttests' study.

Pretest-posttest measures (ACT I booklets) were completed by a group of consultants (a unique group). Although this group was not large, its "uniqueness" was worth exploring. These consultants were being trained under Title I funds; however, unlike teachers in general, they were to develop into future Title I instructional leaders within a specific district. Their booklets were collected by the study's assistant who had been assigned to the group.

Each of the correlate instruments was administered to the various groups of trained teachers and collected from them only after they had completed their ACT I posttest booklets.

Data Analysis

For the first population which had previously been identified, the initial step involving data analysis was that of applied preliminary testing to the means and variances of the groups of respondents. Both the F test for analysis of variance and Bartlett's test for homogeneity of variance were used to determine if there were any systematic differences among groups in terms of the criterion variable (e.g., mean factor scores by concepts, mean factor scores by areas, and mean factor scores across concepts and areas). Because all statistical tests were non-significant, the "treatment" groups of combined groups of teachers were regarded as simple random samples of teachers.

The study's second phase was based on the application of a simple-randomized design to observational data. Because of its adjunct importance, the overall objective was to determine if the subpopulations of a given population (posttest-only teachers) differed in their mean values regarding the criterion variable.

The third and fourth data analyses involved the samples which had been selected from populations of instructional leaders and school-district consultants. Essentially, the criterion responses of these two groups of subjects were analyzed to determine if the mean changes from initial to final tests were significant.

In its final analytical stage, a determination of personality differences between those subjects who changed positively and those subjects who changed negatively on the ACT I Form was made. Comparisons of means for positive and negative change groups were made.

Basically, the study's investigators tested the significance of differences among the treatment groups either by using *t* tests for dependent (correlated) or independent (uncorrelated) random samples of *F* tests (variance and covariance) which were applicable to simple-randomized designs.

Summary

The evaluation's primary population consisted of teachers who had volunteered for Title I training during the 1966-67 school year. The study also had three adjunct populations: (1) teachers who had volunteered for Title I training during the 1965-66 school year, (2) instructional leaders of 1966-67 inservice projects, and (3) school-district consultants who experienced Title I training during the 1966-67 school year.

Criterion and correlate data were collected by members of the study's staff, and these data were reduced by a commercial processing corporation.

The inquiry's statistical analyses (t tests and F tests) were done by an expert programmer who wrote specific programs and used the university's computers.

The criterion instrument was a semantic-differential device which had been structured to measure the evaluative, potency, and activity dimensions of meaning. Although primary emphasis was directed at the evaluative (attitude) dimension, the other two dimensions were fully utilized for multidimensional purposes. In addition to the criterion instrument, one projective (Structured-Objective Rorschach Test) and four non-projective (Sixteen Personality Factor Questionnaire; California Psychological Inventory; Hemmon-Nelson Tests of Mental Ability; The Study of Values) instruments were used as correlate measures.

CHAPTER IV

CONCLUSIONS AND IMPLICATIONS

A number of generalized statements can be made about the study's criterion and correlate results. In the form of conclusions and implications, these statements are directly referable to the effectiveness of inservice training and serve as answers to the evaluation's three basic questions.

Conclusions

Conclusions are stated as subsumptions under the following questions.

Question 1: <u>What changes in semantic-differential meaning accompanied Title I training?</u>

Teachers who experienced Title I training during the 1966-67 school year changed the "direction" of their evaluative ratings concerning authoritarian teachers (favorable - unfavorable). In terms of changed "intensity," respondents judged remedial teachers less favorably. Evaluations which subjects assigned to migrant children became favorable - initially, they had an unfavorable direction. In addition, they rated migrant children as both more potent and less passive. Slow learners were judged as less passive, and inservice training became more potent.

From an area perspective, participants changed the direction (unfavorable → favorable) of their evaluations related to the learners - i.e., the educationally disadvantaged pupil. They also saw the learner as having become less passive. In contrast, respondents rated the teacher and curriculum as less favorable and less active.

Experimental subjects (i.e., teachers who participated in Title I training during the 1966-67 school year) had more favorable evaluations of migrant children than control subjects (viz., the control subjects were teachers who had not participated in Title I training) had of these children. Migrant children were also assigned more potency by experimentals than controls. Experimental subjects considered inservice training more potent than did the controls. Equality was less unfavorable to experimental subjects than to controls.

In terms of areas, controls had unfavorable evaluations of the learner; whereas, the experimental subjects had favorable evaluative judgments about the educationally disadvantaged pupil. The experimentals also rated the method area's concepts as both more favorable and more potent. Aggregately, the evaluative judgments and potency ratings which experimentals assigned to the study's concepts were more favorable and higher than those assigned by control subjects.

After groups of categorized experimentals were compared, the participants who had undergone specialized training were found to have developed more favorable evaluations of the

concepts as a whole than experimental subjects who had been exposed to generalized training.

Consultants who had undergone Title I training during the 1966-67 school year did not change their evaluative or activity ratings; however, they did change the direction (potent → impotent) of their judgments concerning the social policy professed by disadvantaged pupils.

Unlike consultants, instructional leaders made a number of significant changes. Their evaluations of migrant children became favorable (a change in direction). Equality was judged less unfavorable and more active. They changed the direction of their evaluative ratings toward the learner; that is, the educationally disadvantaged pupil became favorable.

Instructional leaders also changed the direction (unfavorable → favorable) of their evaluations concerning the curriculum which had been recommended by Riessman (Chapter III). In addition, leaders made an overall (aggregate) change in their evaluations. Their evaluative judgments, as a whole, became significantly more favorable.

Question 2: What differences in semantic-differential meaning existed between teachers who had already experienced Title I training (1965-66 school year) and teachers who had never undergone Title I training?

Teachers who participated in Title I training during the 1965-66 school year judged the concepts (inservice training and enrichment programs) which were subsumed under the method's area as cumulatively more favorable. Conversely, they viewed

authoritarian teachers (a concept) as less active than the non-participants viewed the same concept.

Question 3: What relationships existed between various personality characteristics and changes in attitude which accompanied Title I training?

Ego strength and changed evaluations were associated. Since the association was positive, teachers above the mean in ego strength tended to be above the mean in evaluative change. Subjects who were emotionally stable, calmer, and faced reality exhibited more change; whereas, experimentals who were affected by feelings, emotionally less stable, and easily upset tended to fall below the mean on change.

Both verbal ability and quantitative ability were related to changes in evaluation. The associations were both negative. Teachers who were above the mean on evaluative change tended to be below the means on both measures of mental ability.

Although they were described as low or slight, a number of additional associations were identified. Teachers who were above average on both the activity potential (capacity to follow through on a planned course of action) and practical (tendency to think or attack problems on the basis of practical, concrete, or very definite details) attributes of mental functioning were also above average regarding evaluative change. In contrast, teachers who were above the mean on evaluative change tended to be below the means on the pedantic (tendency to be perfectionistic) and structured (rigid and formalistic ways of solving problems) attributes of mental

functioning. Additionally, teachers who were above the mean on evaluative change tended to be lower in flexibility (tendency to be methodical and rigid).

Three supplementary conclusions were generated from the study's findings. Referable to testing the null hypothesis that no personality differences existed between those teachers who changed their evaluative judgments positively and those subjects who changed negatively, negative changers were higher on shrewdness than positive changers. Other findings suggested that long-term effects were not greater than immediate (short-term) effects for general or specific judgments concerning the evaluative, potency, and activity dimensions of meaning (Appendix A). Additionally, adjunct findings allowed the conclusions that experimental subjects did not differ from control subjects on the variables of age, annual salary, teaching experience, and district tenure. Although the groups differed on the variables of sex, marital status, degree held, and undergraduate major, statistical tests indicated that none of the variables had systematic effects on the criterion responses of experimental and control subjects (Appendix B).

Implications

In the conclusions' section of this chapter, evaluative judgments represented the attitudinal dimension of meaning. In these terms, the semantic differential's evaluative factor was utilized as an index of attitude. Since the ACT I investigation was basically concerned with changes in attitude,

the implications generated from the inquiry's results were primarily focused on attitudes.

Implications were also directly referable to value judgments associated with the concepts (Chapter III). In essence, the value judgments were representative of recommendations which had been made by a number of authors (primarily, Riessman, 1962). In terms of the value judgments, teachers who experienced Title I training during the 1966-67 school year were to judge educationally disadvantaged pupils as more favorable, potent, and active. Participants were also to judge teachers, curriculum, and methods which had been recommended for the education of disadvantaged pupils as more favorable, potent, and active. In addition, teachers were to judge the social policy professed by disadvantaged groups-in-general as more favorable, potent, and active.

The results of the ACT I study implied that Title I training was effective when "the learner" (e.g., the educationally disadvantaged pupil) was used as a referent. Both teachers and instructional leaders changed their attitudes toward disadvantaged children, especially migrant children. Although their initial attitudes had been unfavorable, they modified the direction of their attitudes - that is, their attitudes became favorable. This implication received further reinforcement from another investigational resultant. Teachers who experienced Title I training changed the direction (unfavorable → favorable) of their attitudes toward educationally disadvantaged pupils; whereas, control teachers maintained

their unfavorable attitudes toward the learner.

Although findings related to "the teacher" and "curriculum" areas suggested that Title I training may have been ineffective, the interpretations associated with these results seemed controversial. Several members of Arizona State University's Department of Special Education felt that the development of less favorable attitudes toward authoritarian and remedial teachers, the three "R's," and the physical sciences may have indicated that Title I training had been effective, rather than ineffective - that is, they disagreed with Riessman (1962, pp. 13, 30, 72).

The results of the inquiry also implied that teachers who were exposed to specialized training developed more favorable attitudes than teachers who had been exposed to generalized training - that is, specialized training may have been more effective. Another implication suggested that differential effectiveness was not related to the size, length, cost, or location of Title I training.

When results suggested that no attitudinal differences were observed during repeated posttesting, members of the study's interpretive staff made the implication that long-term effects of Title I training may not have been greater than short-term effects concerning either general or specific attitudes.

Title I training of consultants was not accompanied by attitudinal changes. Such results implied that inservice training had been totally ineffective for these participants.

The implication seemed to have been that their attitudes toward the various concepts had been fixed before they reached Title I training, and their inservice experiences did little to change these attitudes.

Inservice training seemed to have been exceedingly effective for those individuals who assumed instructional responsibilities (e.g., the instructional leaders). Not only did they change the direction (unfavorable → favorable) of their attitudes toward educationally disadvantaged pupils, but they also developed more favorable attitudes toward the curriculum. In addition, instructional leaders were the only respondents who changed their attitudes about equality - that is, they became less unfavorable.

Since no attitudinal differences were observed between teachers who had already been subjected to Title I training during the 1965-66 school year (viz., one year prior to the present investigation) and teachers who had never undergone Title I training, it was implied that short-term differences in attitudes between trained and untrained teachers may not persist over a long period of time.

The study's correlate results implied that teachers who had higher ego strength and lower mental ability developed more favorable attitudes. This implication was congruent with the hypothesis that the lower the mental ability of a teacher, the more susceptible he was to pressures toward congruity. Literary evidence has suggested that intelligent people are more aware of incongruities, and as such, they resist pressures

toward cognitive simplification.

At least in terms of the affective domain, teachers who are higher in ego strength, activity potential, and the practical attribute of mental functioning and lower in the pedantic and structured attributes of mental functioning, shrewdness, and mental ability may be somewhat more effective than other teachers when the educationally disadvantaged pupil is used as a referent.

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APPENDIX A

THE SEPARATE-SAMPLE PRETEST-MULTIPLE POSTTEST' STUDY[1]

Since theory related to the phenomenon of long-range effects being greater than immediate (short-term) effects for either general or specific attitude change was found to be exceedingly questionable (Gage, 1963, pp. 201-202), ACT I's director decided to explore such a possibility only in terms of secondary importance.

Although the separate-sample design involved the random assignment of experimental subjects to three independent groups and avoided testing effects (Campbell and Stanley, 1963, p. 223), six-weeks' posttesting was dimly viewed as a long-range criterion measurement. The study's investigators would have chosen a much longer interim-posttest period, but contractual obligations precluded such arrangements.

Hypothesis 4.01

There are no differences among the mean evaluative, potency, and activity aggregate scores of experimental subjects categorized by test periods.

Hypothesis 4.02

There are no differences among the mean evaluative, potency, and activity area scores of experimental subjects categorized by test periods.

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[1]Conclusions, comments, and implications related to the separate-sample pretest-multiple posttests' study were reported in Chapter IV.

Hypothesis 4.03

There are no differences among the mean evaluative, potency, and activity concept scores of experimental subjects categorized by test periods.

Statistical Tests for Hypotheses 4.01, 4.02, and 4.03

Since the separate-sample design which was implemented involved a model having a k-sample case, independent samples, F tests (analysis of variance) were utilized to determine the significance of mean aggregate, area, and concept score differences among groups of experimental subjects categorized by test periods. If significant F values were calculated, t tests were then made of the differences between pairs of means, and the significance of these differences was determined.

Results (Hypothesis 4.01)

No significant differences were found among the three test periods in terms of mean aggregate scores.

Results (Hypothesis 4.02)

An inspection of the F ratios indicated that a significant difference existed among period means for the teacher area. After determining differences among pairs of test period means by the use of t tests, two significant differences were found between (1) the pretest-immediate posttest periods and (2) the pretest-six weeks' posttest periods (.01, .05).

Results (Hypothesis 4.03)

A review of the statistical values suggested that a significant difference among period means had been obtained for authoritarian teachers. Critical ratio tests (t tests) between pairs of period means produced one t ratio (i.e., the one associated with the pretest-immediate posttest comparison) which was in the region of rejection (.01).

APPENDIX B

DESCRIPTIVE SAMPLES' INQUIRY[1]

Even though preliminary statistical tests (viz., the F test of analysis of variance and Bartlett's test for homogeneity of variance) suggested that there were no systematic differences in the means and variances among the experimental and control groups' teachers so far as the criterion variable was concerned and even though F tests (analysis of covariance) "held constant" the concomitant variable (i.e., the pretest which served as a covariate), members of the study's research staff initially decided to examine the responses which teachers had made to the ACT I Form's teacher data sheet variables. Examinations such as these were used to test whether the subjects in the experimental and control groups differed with respect to selected characteristics and therefore with respect to the relative frequencies with which group members fell into several discrete categories.

The null hypotheses were that each of the various characteristics was independent of experimental-control position (i.e., that the proportion of experimental subjects in each category was the same as the proportion of control subjects in each category when the total membership of all

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[1]Conclusions, comments, and implications related to the descriptive samples' inquiry were reported in Chapter IV.

categories was considered.

Tests of significance (chi square tests) were applied to the data. After inspecting the results of these tests, significant experimental-control group differences were identified for (1) sex, (2) marital status, (3) highest degree held, and (4) level of undergraduate major. In contrast to these findings, no age, salary, or experience differences were enumerated.